IEP Predation Workshop Update – July 22nd 23rd

The Predation Workshop with an attendance of around 120 people was conducted on July 22nd and 23rd. Overall, it was well received and was well attended by a wide variety of stakeholders including State and Federal Water Contractors, representatives of irrigation districts, Coalition for a Sustainable Delta, Sport Fish Alliance, California Striped Bass Association and Sierra Club as well as many public agency and private scientists and managers. There was an orientation on the Bay Delta System and presentations on Fish Predation Studies (Recent, Current, Planned), Salmon Survival Studies and Modeling Efforts. Larry Brown (USGS) and Louise Conrad (DWR) of the IEP Management Team made presentations on the ecological context and Largemouth Bass respectively that were well received by the panel. IEP also provided the moderator for the workshop and many IEP members were in attendance. Importantly, a number of studies funded or coordinated by IEP were central to the discussion including Erik Loboschefsky's modeling, Striped Bass abundance index, Largemouth Bass and others. The panel's initial report out was straight forward. The following notes show a number of aspects related to IEP:

1. The Delta is unique in considering the range of factors (biological, chemical, physical) because it does not correlate well to the Columbia, east coast or other systems with its complexity of the watershed dynamics. They characterized the dynamics in terms of: (a) physical, chemical environment of turbidity, SAV, temperature, salinity, nutrients, DO, shoreline modifications, water operations, habitat simplification, irrigation return flows and more; (b) predator assemblage including nonnative predators, changes in age structure, abundance and composition, novel interactions; and (c) prey characteristics including replacement of macro-invertebrates, lower abundance of smolts, depensatory mortality, hatchery vs. wild, smolt size and outmigration timing.
2. There were perhaps a couple lessons from other systems to consider. Several of the panel noted that in other systems that salmon are a preferential prey item considering the bioenergetics and physical characteristics (e.g. no serious dorsal spines) and predators have been shown to select for them. They also noted that habitat loss and invasive species are the two leading causes of decline of natives.
3. There are many datasets, however the studies are very limited for the questions being asked and are primarily observational. There was a need for more causal or mechanistic studies to understand the observations and how these vary spatially from river to ocean. Most studies characterize hatchery fish so the differences with wild fish need to be understood to qualify the results.
4. The panel suggested that there was a strong need for coordination of the many studies occurring for various purposes and that it would benefit from matching purposes, standardizing techniques and coordinating to make the results more useful. The spatial aspects of having three unique areas (aka basins) within the Delta are important in understanding how factors change over time and distance. Thus should be considered in studies.
5. Modeling may help bridge gaps in the data in the near term but they cautioned that it was important to use the models to test hypothesis and focus research rather than seeking definitive outputs for management decisions when data is sparse and assumptions are not confirmed.
6. They noted there is predominance of assumptions that predation is the proximal cause when tracked fish go missing comments that other factors such as inhospitable habitat other factors

could be the ultimate cause. As a parallel, they also noted there could be benefit from more efforts to note and relate environmental conditions such as water year, salinity, flow context, etc. The effects of tagging procedures also needed to be considered.

7. They noted that predation is very context specific and thus considerations and studies need to take that into account. Anthropogenic hot spots seemed ripe for further evaluation and focus to learn more although the outcome of predator removal were not predicable in such a complex system with very mobile predators. They did note that current Striped Bass and Salmon population estimates were not correlated.
8. There is not enough information to really understand how the population would respond to less predation pressure, especially with very mobile predators.
9. The lack of abundance and distribution data for predators such as Black Bass, White Catfish, sub-adult Striped Bass and Pikeminnow was a large gap in understanding the role of predation and any effect in Salmon Population Levels. They also noted that more salmon population abundance and distribution information was needed.

Over the next 6-8 weeks, the panel will review the information presented, and that read via the bibliography and will use their discretion to review the additional submitted material posted to the website in developing the Panel's report that will be a Stewardship Council Science Program report. After a final copy edit and approval from the DSP lead scientist, the report will be posted to the website. In the meantime, the presentations and the video will be posted for those who could not be there and any questions from the panel will be routed through the conveners. For more information, please visit the website at: www.dfg.ca.gov/erp/predation.asp